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Intraoperative immunofluorescence expresses examination of effusionsfrom serous cavities

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The examination of effusions from serous cavities is the most complex part of cytological diagnostics. It is difficult to find cancer cells in effusions at early stages of a metastasis. Immunomorphological methods give real representation about a degree of prevalence of neoplastic process. Using immunocytochemical effusions examination by immunoperoxidase method (ICC) with usage of epithelial marker Ber-EP4, we showed that in complex diagnostic cases of adenogenic cancer in 79% of examinations, the dissemination of a tumor suspected by routine cytological examinations proves to be true in 15% not numerous tumor complexes which are not diagnosed at routine cytological research are revealed and in 7% it is possible to avoid overdiagnostics of neoplastic process. However, ICC examination is labor-intensive enough procedure and it occupies 3 hours on time. Immunofluorescence method (IF) with epithelial marker Ber-EP4 FITC is a new reliable and fast method of diagnostics of exudate character. Epithelial marker Ber-EP4 FITC (cloneBer-EP4) from "DAKO" company was directly carried in centrifugation deposit. Then liquid preparations were prepared with the help of Cytospin3 centrifuge. A staining by nuclear stain DAPI was carried out for visualization of nucleus of all cellular elements present in a preparation. Examination was carried out on fluorescence microscope Imager M1of "Karl Zeiss" company. Use of this method is especially perspective for intraoperative immunofluorescence express examination of effusions because it does not demand of complex preliminary preparation of material and substantial time expenses: An examination occupies 20 minutes. 600 examinations were carried out. Adenogenic cancer cells were found in 350 observations and in 65 ones tumor complexes were not numerous. At scheduled histological examinations in all 350 observations of specific effusions the dissemination of a tumor on serous sacs was confirmed. Test sensitivity was equal to 90% and specificity was 96%.

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Yeast cells physiology after high hydrostatic pressure stress

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High hydrostatic pressure (HHP) is a stress that exerts broad effects on microorganisms with characteristics similar to those of common environmental stresses. Cells subjected to HHP shows alteration in their macromolecule structure. Physiological and biochemical processes are also modified to maintain cell viability. Changes in *Saccharomyces cerevisiae* cells physiology subjected to HHP were observed by flow cytometer using ethidium bromide (BE), bis-oxonol (BOX) and propidiumiodide (PI) as fluorescent markers. The results indicated the feasibility on the use of flow cytometry based on optical data from the light scattering as a relative counting technique but not as an absolute technique due to the presence of budding cells. SYTO 9 and PI fluorophores were suitable to analyze cell viability showing strong correlation with agar-plating technique. HHP caused cell size and cell complexity reduction. An increase in cellular stress as evidenced by membrane depolarization using PI marker was noticed in pressures above 50 MPa. Moreover, there was an increase in cell damagein HHP from 150 MPa that impaired life. Cell physiology analysis performed with BOX and PI fluorophores provided data on the percentage of dead, live or damaged cells favorable for discriminating two subpopulations: Live-healthy cells and live-stressed cells. Flow cytometry thus provided detailed data on the effect of HHP when compared to traditional techniques for cell damage analysis by providing information on cell viability on morphological and physiological changes through fast and accurate readings.

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